

Work Order ID 150097

Wednesday, August 24, 2016 11:30:50 AM

150097

Page 1

Item ID: D500-572-011 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: MD369/MD500 Bearpaws
 Start Date: 8/12/2016 Start Qty: 2.00 ***2*** Cust Item ID:
 Required Date: 8/24/2016 Req'd Qty: 2.00 ***2*** Customer:
 Reference:

Approvals: Process Plan: **DAS 21** Date: **AUG 24 2016** Tooling: Date: Run Start ***NR1***
 QC: **9-89** Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D2435	Rev E1
IIND500-572	RevA

100	Document Control	0.00							
100	DOCUMENT CONTROL								
DC	Memo	0.00							
Doc.Control -USB or Paperwork	Photocopy bluefile and create labels per PPP D500-572-011 CHG005								

160	Pick Kit	0.00							
160									
Packaging	Memo	0.00							
Packaging									

DAS 21 9-89 16-09-26
DAS 27 9-89
DAS 28 9-89
SEP 26 2016
NOV 01 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
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Misidentified ☐	Past Due ☐																																																																

Picklist Print

Wednesday, August 24, 2016 11:30:54 AM

Page 1

Work Order ID: 150097

150097

Parent Item: D500-572-011

D500-572-011

Parent Item Name: MD369/MD500 Bearpaws

Start Date: 8/12/2016

Required Date: 8/24/2016

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP Rev:C04.02.17Blank size changedKJ/JLM
IPP Rev:D 07-01-02 Was K10007 JLM
IPP Rev:E 08-01-09 Added Step 2 JLM Verified By:EC
IPP Rev:F 08-10-15 New Manufacturing Method JLM Verified By:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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QS200-M44S

Purchased

No

120

Each

26.0000

2

4

QS200-M44S

CLAMP

SEP 29 2016

DAS
27
9-89

Location

Loc Qty

Loc Code

ST545

26

m131340

6

m133363

20

AN4-15A

Purchased

No

170

Each

195.0000

8

16

AN4-15A

Bolt

SEP 29 2016

DAS
27
9-89

Location

Loc Qty

Loc Code

GA

26

120449

26

over003

100

m135478

100

ST343

69

m133769

8

m134055

12

m135127

1

m135297

48

DAS
28
6
9-89

DAS
28
6
9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
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				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
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Parent Item: D500-572-011

D500-572-011

Parent Item Name: MD369/MD500 Bearpaws

Start Date: 8/12/2016

Required Date: 8/24/2016

Start Qty: 2.00

Required Qty: 2.00

D2182B

Manufactured No

170 f

384.0208 1.666 3.332

D2182R

Rubber Cushion - Black (\$Per Foot)

**

SEP 29 2016

DAS 6 28 9-89

DAS 27 9-89

Location

Loc Qty

Loc Code

ST411

384.0208

108914

2.5

130427

31.5208

135093

350

✓

D2274

Manufactured No

170 Each

207.0000 8 16

D2274

Radius Block

**

10XB150353

SEP 29 2016

DAS 6 28 9-89

DAS 27 9-89

Location

Loc Qty

Loc Code

FG

12

86855

12

ST006

11

144391

11

ST012a

184

147530

184

6

D2435

Manufactured No

170 Each

0.0000 2 4

D2435

Bearpaw

D2438

Manufactured No

170 Each

38.0000 4 8

D2438

Clamp

**

150371

SEP 29 2016

DAS 6 28 9-89

DAS 27 9-89

**

SEP 29 2016

DAS 6 28 9-89

DAS 27 9-89

Location

Loc Qty

Loc Code

ST542

38

147538

38

8

Wednesday, August 24, 2016 11:30:54 AM

Shop Packet Print

Page 2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																	
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150097

Parent Item: D500-572-011

D500-572-011

Parent Item Name: MD369/MD500 Bearpaws

Start Date: 8/12/2016

Required Date: 8/24/2016

Start Qty: 2.00

Required Qty: 2.00

D2529

Manufactured No

170

Each

288.0000

8

16

D2529

Washer

**

157561

DAS
6
9-89

SEP 29 2016

DAS
28
9-89

Location

Loc Qty

Loc Code

ST008

264

108881

12

147569

252

ST009

24

140554

24

MS21042L4

Purchased

No

170

Each

2,179.000

8

16

MS21042L4

Nut

**

DAS
6
9-89

SEP 29 2016

DAS
28
9-89

Location

Loc Qty

Loc Code

FP001

51

m133363

51

GA

424

m133769

116

m135058

308

ST3003

25

m134955

25

ST303

1679

m133769

12

m134055

24

m135297

643

m135470

1000

DAS
27
9-89

15

DQA: _____ Date: _____



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Root Cause		FAULT CATEGORY							
Environment ☐	☐ No Re-verification	☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong				
Design ☐	☐ Operator	☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions				
Doc/Data ☐	☐ Offset/Setup	☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance				
Equip/Tooling ☐	☐ Supplier	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect				
Handling/Pre ☐	☐ Training	☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing				
Material ☐	☐ Use for Testing	☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved				
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Tribal Knowledge ☐	☐ Rushing	☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Finish				
LOA ☐	☐ Product Improvement	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread				
Substation ☐	☐ Process Improvement	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence				
Past Expiry Date ☐	☐ Manufacturing Process	OTHER : _____							
Misidentified ☐	☐ Past Due								

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Work Order ID: 150097

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Parent Item: D500-572-011

D500-572-011

Parent Item Name: MD369/MD500 Bearpaws

Start Date: 8/12/2016

Required Date: 8/24/2016

Start Qty: 2.00

Required Qty: 2.00

NAS1149D0463J

Purchased

No

170

Each

2,510.000

8

16

NAS1149D0463J

Washer

DAS
6
9-89

SEP 29 2016

DAS
28
9-89

DAS
27
9-89

Location

Loc Qty

Loc Code

GA	240	
M132035	15	
M134508	32	
M135056	193	
ST260a	1000	
M135407	1000	16
ST263	1258	
M134039	24	
M135390	1234	
ST2663	12	
M134039	12	

Wednesday, August 24, 2016 11:30:54 AM

Shop Packet Print

Page 4

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation		Disposition			

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER : _____			
Misidentified ☐		Past Due ☐					

QA COPY ISSUED

RELEASED
98.06.17 KE

14.06.17 KE

ENGRAVE LOGO TO MAX
DEPTH OF 0.012. ENGRAVE
PART AND BATCH NUMBERS
TO MAX DEPTH OF 0.010.
(TYPICAL LOCATION AS
ILLUSTRATED)

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 150097ML

1608-24



Ø 0.93 C' BORE
E 0.30 DEEP FROM BOTTOM
FROM TOP (MIN.)
FROM BOTTOM
MIN.)

MIN.)

(w)

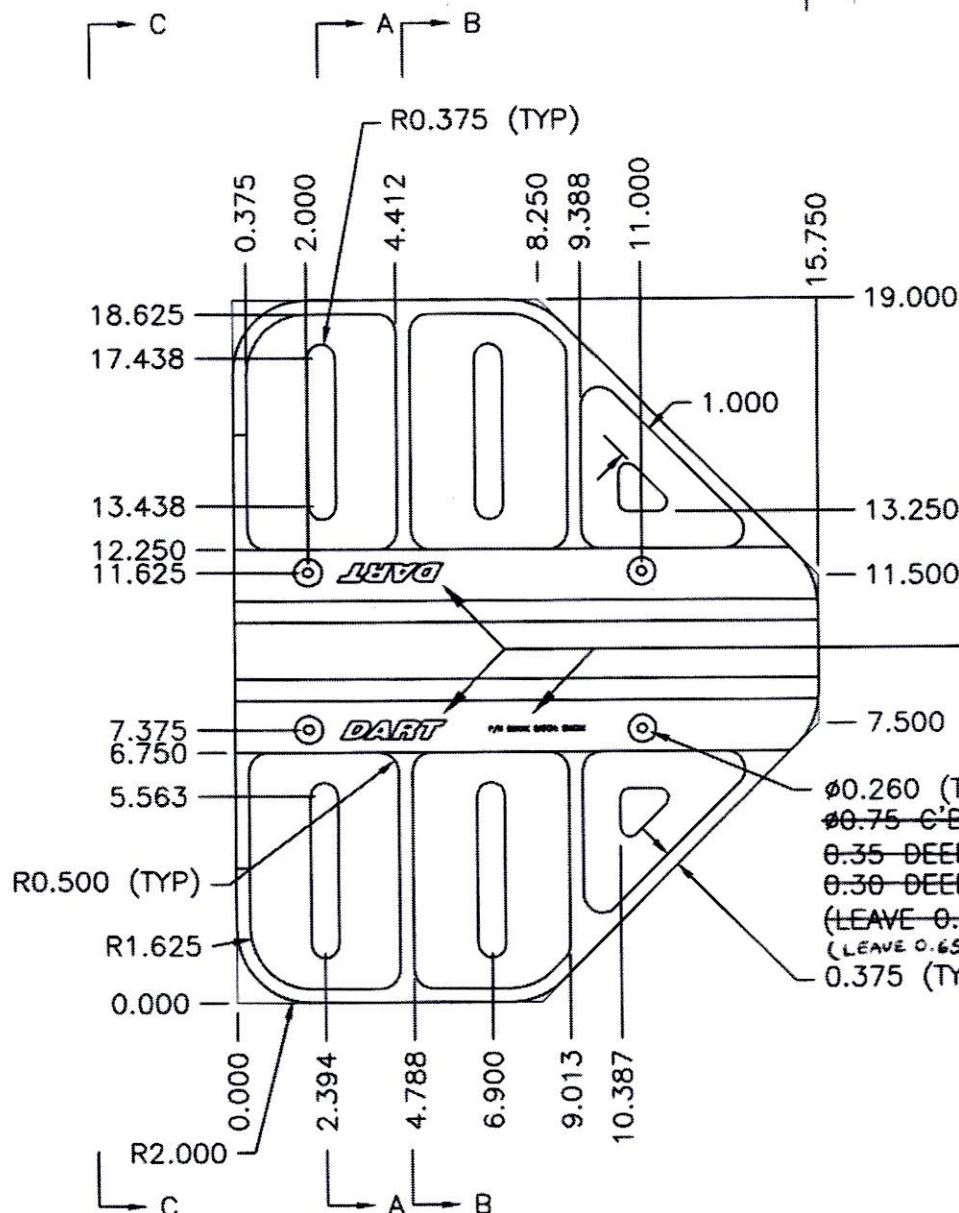
E

E

EFFECTIVE DEOS

9143

DESIGN	DRAWN BY	DART AEROSPACE LTD HAMKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	REV. E	
DATE		SHEET 1 OF 2	
98.05.19		SCALE	1:5
A	96.01.24	NEW ISSUE	
B	96.03.26	CHANGE BORE AND C'BORE DEPTH	
C	97.05.07	CHANNEL & C'BORE DEPTH CHANGED	
D	97.10.17	R1.5 BORE WAS R2.637 (TSR A469)	
E	98.05.19	CHANGE C'BORE, R1.58 WAS R1.50	

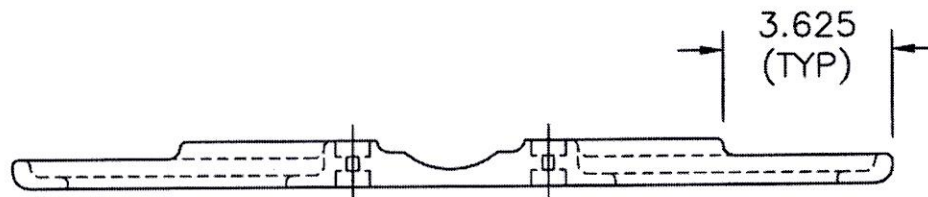
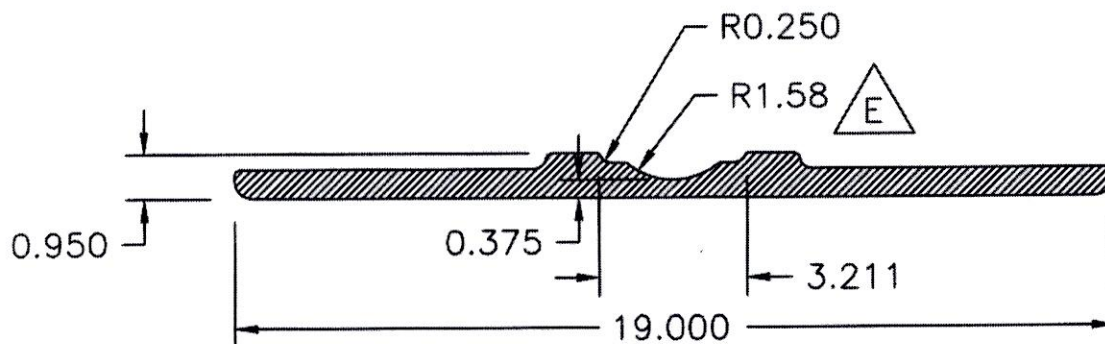
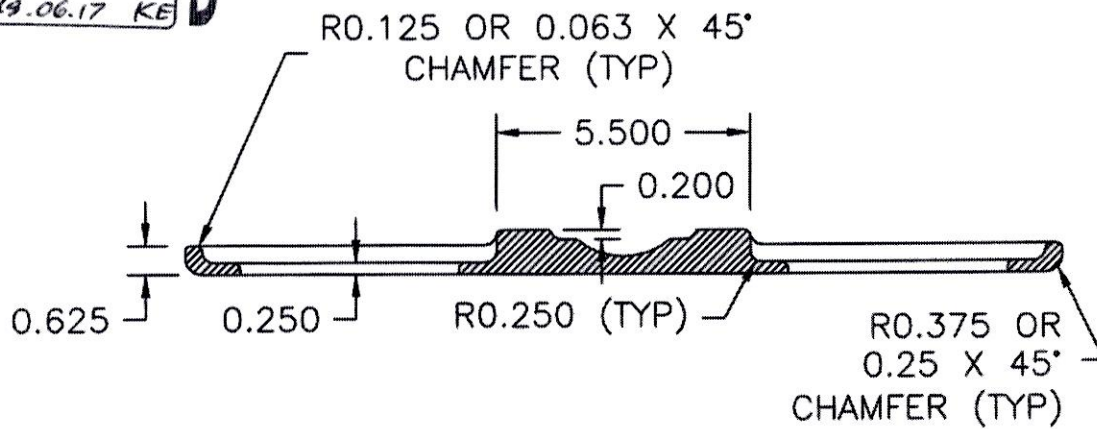


MATERIAL: UHMW BLACK PER SPEC CONTROL DRAWING D2689
1.00 THICK (MACHINE TO 0.950)



DESIGN <i>KE</i>	DRAWN BY <i>KE</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>MB</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D2435	REV. E SHEET 2 OF 2
DATE 98.05.19		TITLE BEARPAW	SCALE 1:4

RELEASED
99.06.17 KE



4. WEIGHT AND BALANCE

Installation	Weight	LATERAL		LONGITUDINAL	
		Arm	Moment	Arm	Moment
D500-572-011 Bearpaw Installation	8.5 lb 3.86 kg	0.0 in 0.0 m	0.0 lb-kg 0.0 m-kg	130 in 3.30 m	1105 in-lb 12.74 m-kg
D500-572-021 Narrow Bearpaw Installation	7.5 lb 3.41 kg	0.0 in 0.0 m	0.0 lb-kg 0.0 m-kg	130 in 3.30 m	975 in-lb 11.25 m-kg
D500-572-013 Bearpaw Installation	11.4 lb 5.17 kg	0.0 in 0.0 m	0.0 lb-kg 0.0 m-kg	128 in 3.25 m	1459 in-lb 16.80 m-kg
D600-572-015 Bearpaw Installation	11.4 lb 5.17 kg	0.0 in 0.0 m	0.0 lb-kg 0.0 m-kg	122 in 3.10 m	1391 in-lb 16.03 m-kg

5. PARTS LIST

Qty D500 -572 -011	Qty D500 -572 -021	Qty D500 -572 -013	Qty D600 -572 -015	Part Number	Description
X				D500-572-011	BEARPAW INSTALLATION
	X			D500-572-021	NARROW BEARPAW INSTALLATION
		X		D500-572-013	BEARPAW INSTALLATION
			X	D600-572-015	BEARPAW INSTALLATION
2				D2435	BEARPAW
	2			D2671	BEARPAW
		2		D2995	BEARPAW
			2	D2996	BEARPAW
4	4	4		D2182B050	RUBBER CUSHION
			4	D2182B060	RUBBER CUSHION
8	8	8	8	D2274	RADIUS BLOCK
4	4	4		D2438	CLAMP
			4	D2519	CLAMP
8	8	8	8	D2529	WASHER
		8	8	AN4-13A	BOLT
8	8			AN4-15A	BOLT
8	8	8	8	AN960JD416	WASHER
8	8	8	8	MS21042L4	NUT (OR MS21042-4)
2	2			QS200M44S	CLAMP
			4	QS100M24S	CLAMP

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Revision: **A**
Date: 01.02.21